

METHOD FOR IDENTIFYING AND USING COMPOUNDS THAT INACTIVATE HIV-1 AND OTHER
RETROVIRUSES BY ATTACKING HIGHLY CONSERVED ZINC FINGERS IN THE VIRAL NUCLEOCAPSID PROTEIN
Replacement Sheet

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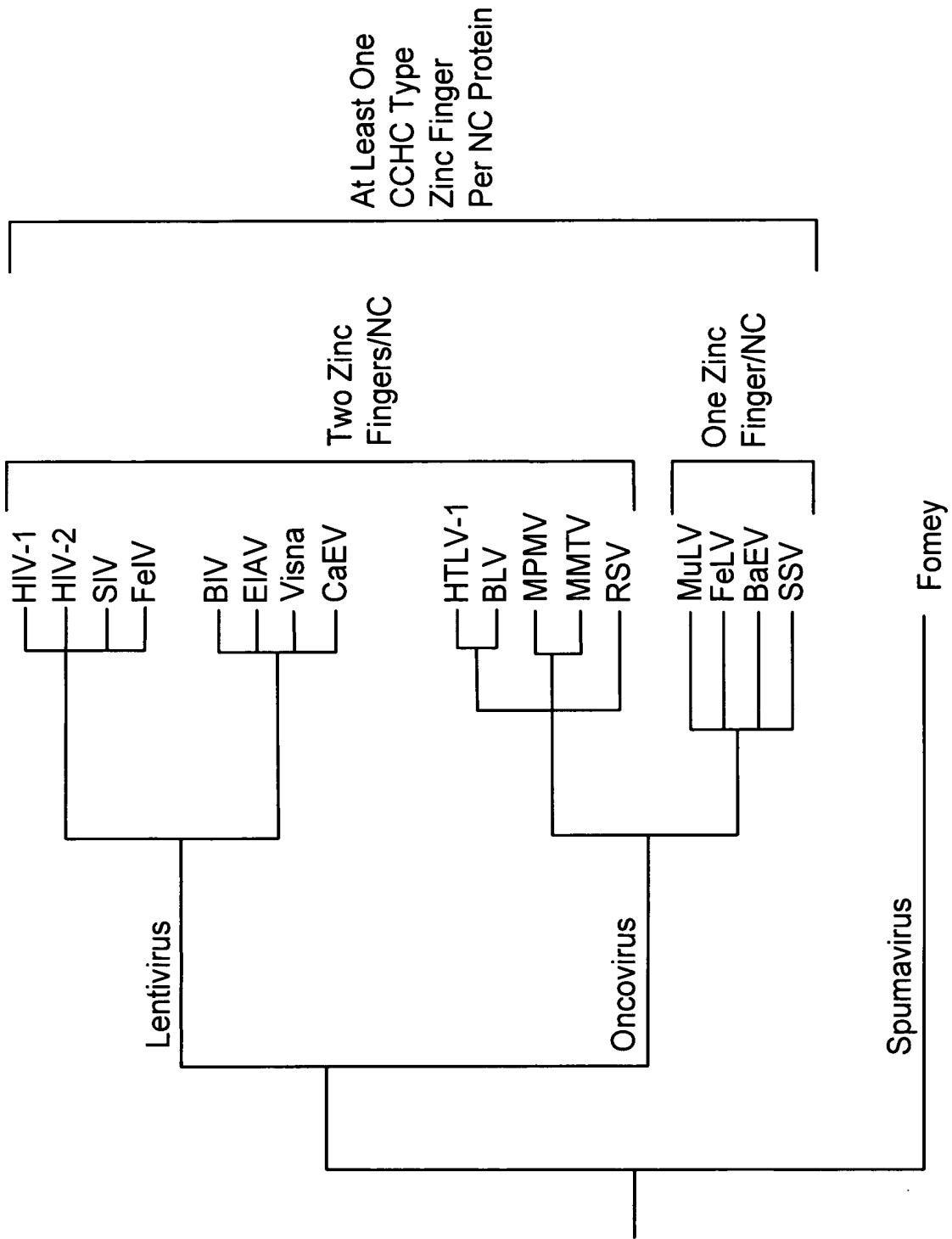


FIG. 1

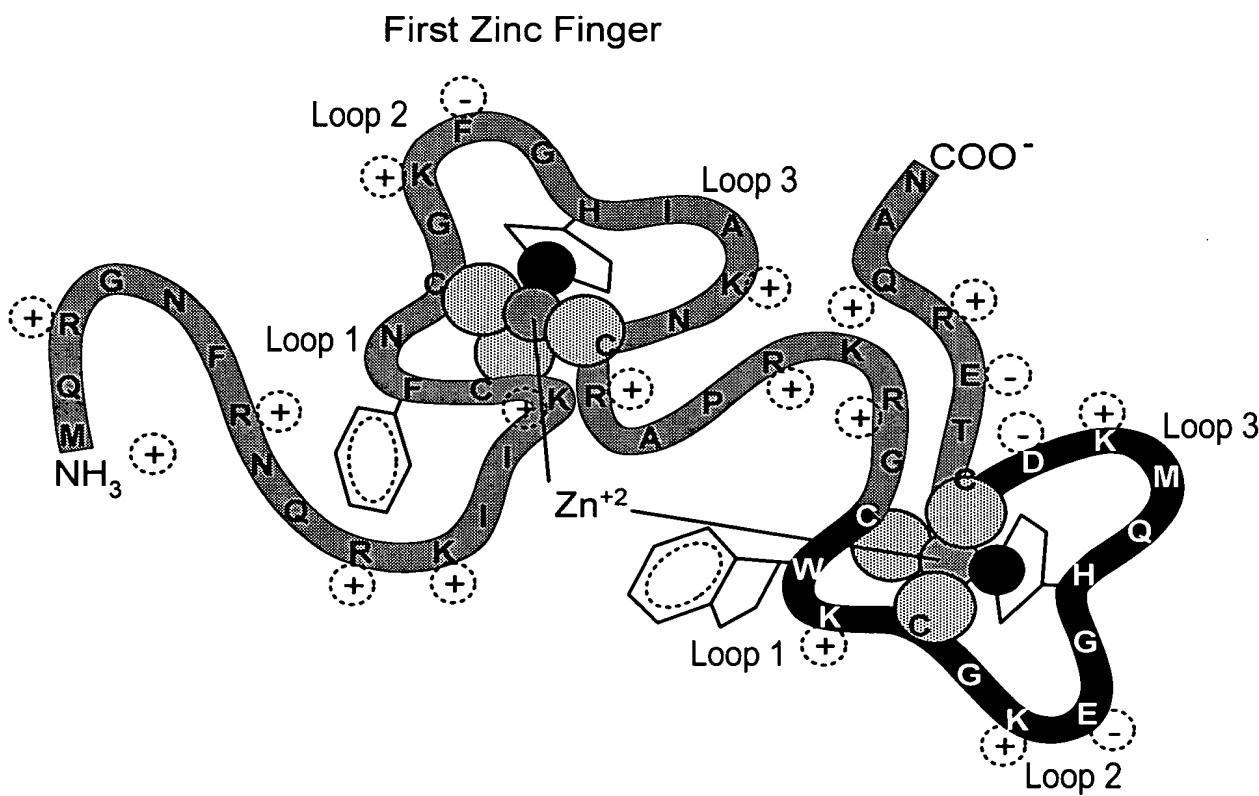
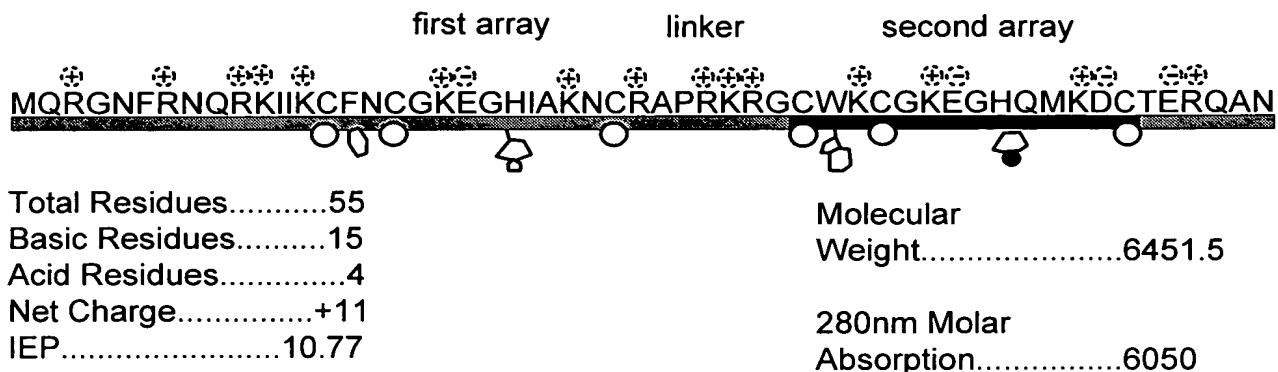


FIG. 2

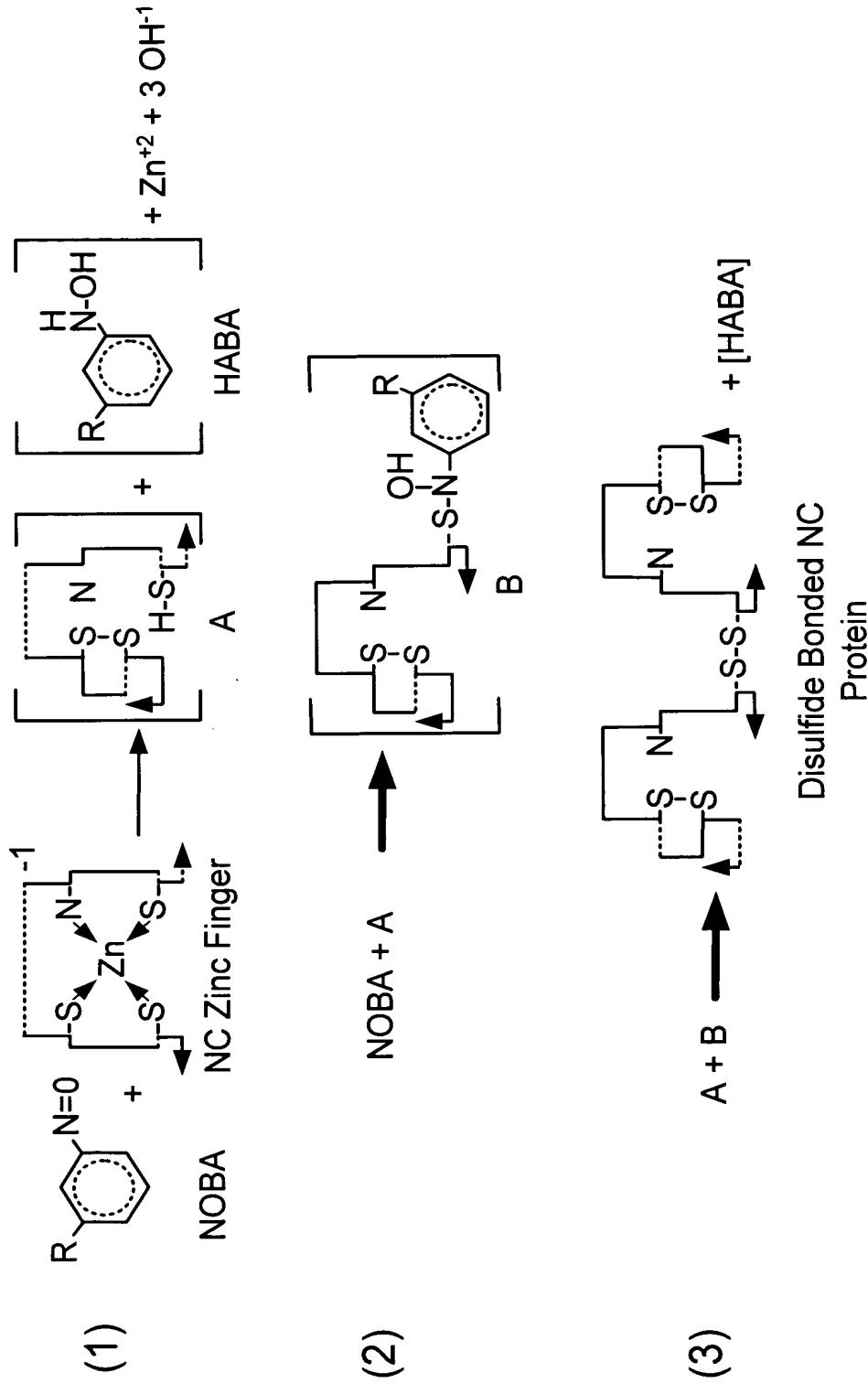


FIG. 3

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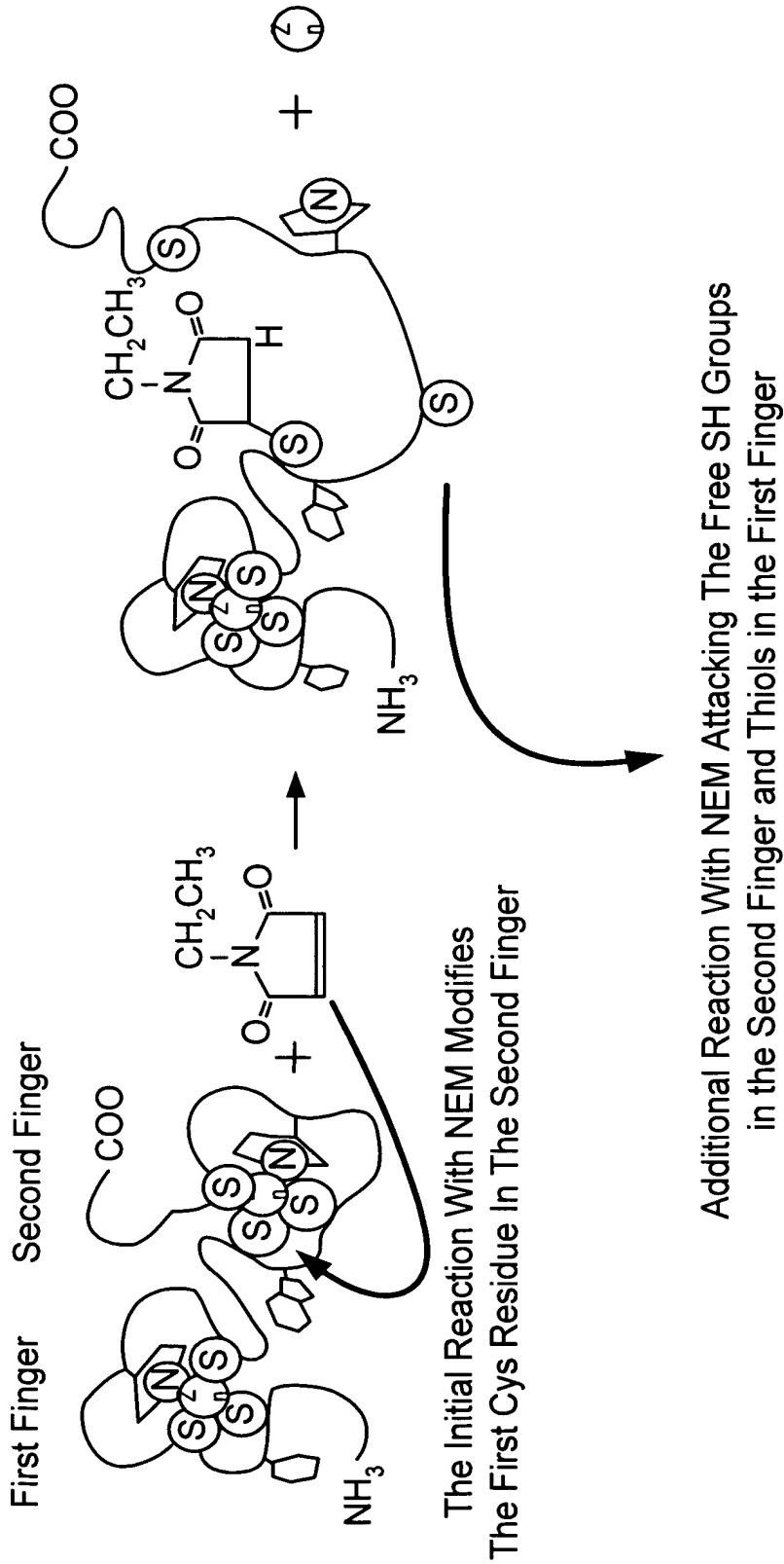
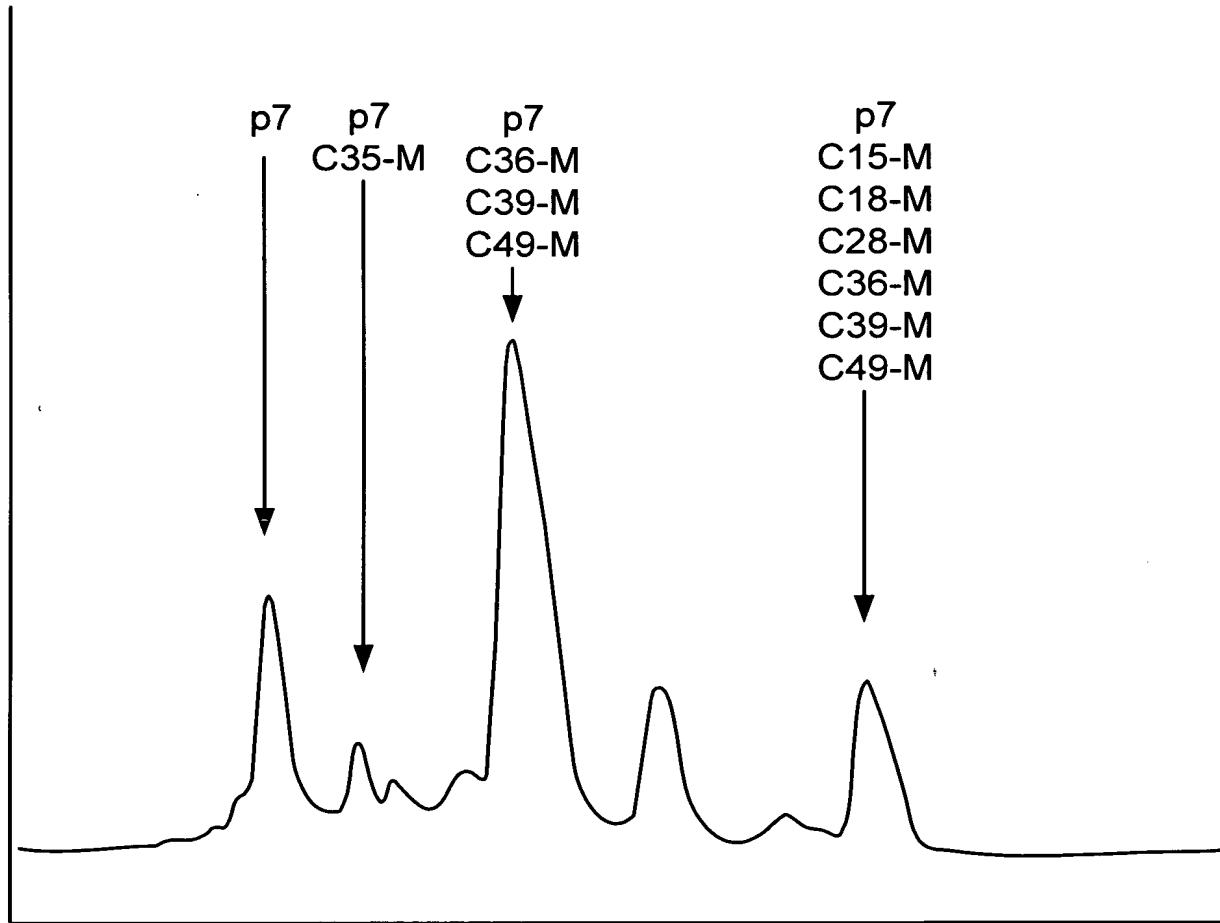


FIG. 4

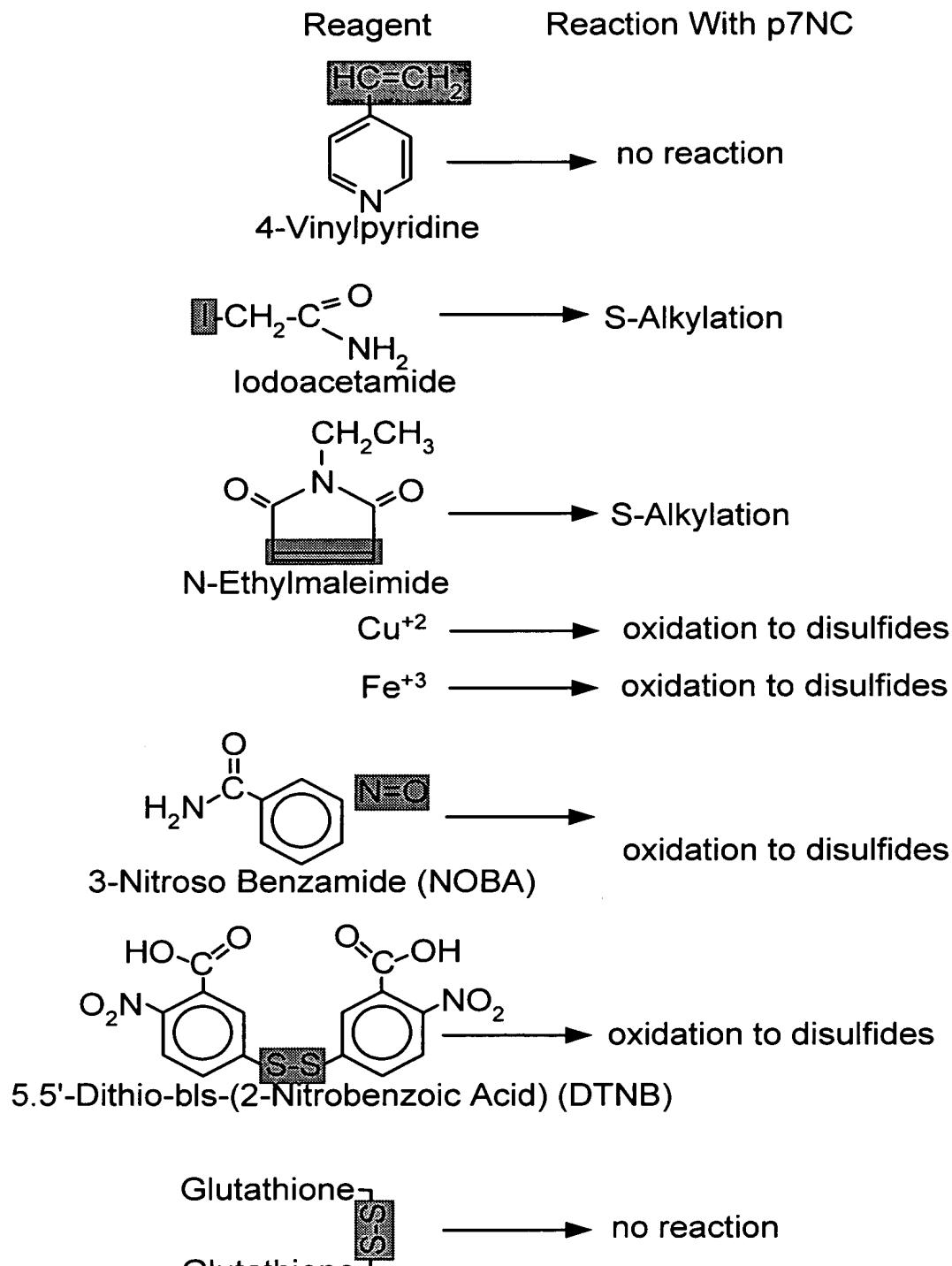
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Reaction conditions: 52 mM p7NC + 744 mM NEM; pH 7.0, 60min. at RT.
The positions of alkylated Cys residues were determined by sequence
analysis of separated proteins and are indicated by the notation C#-M.

FIG. 5

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The reactive functional groups are shaded 

FIG. 6

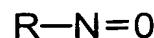
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+

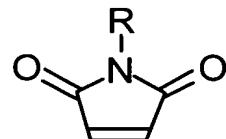
disulfides



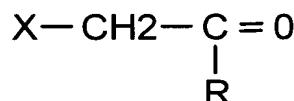
nitroso compounds



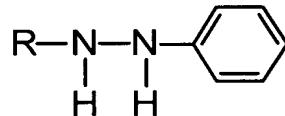
maleimides



α -halogenated ketones



phenylhydrazids



Nitric Oxide and Derivitives NO

cupric ions and complexes Cu⁺²

ferric ions and complexes Fe⁺³

where R is any atom or molecule, and X is selected from the group consisting of F, I, Br and Cl.

FIG. 7

+

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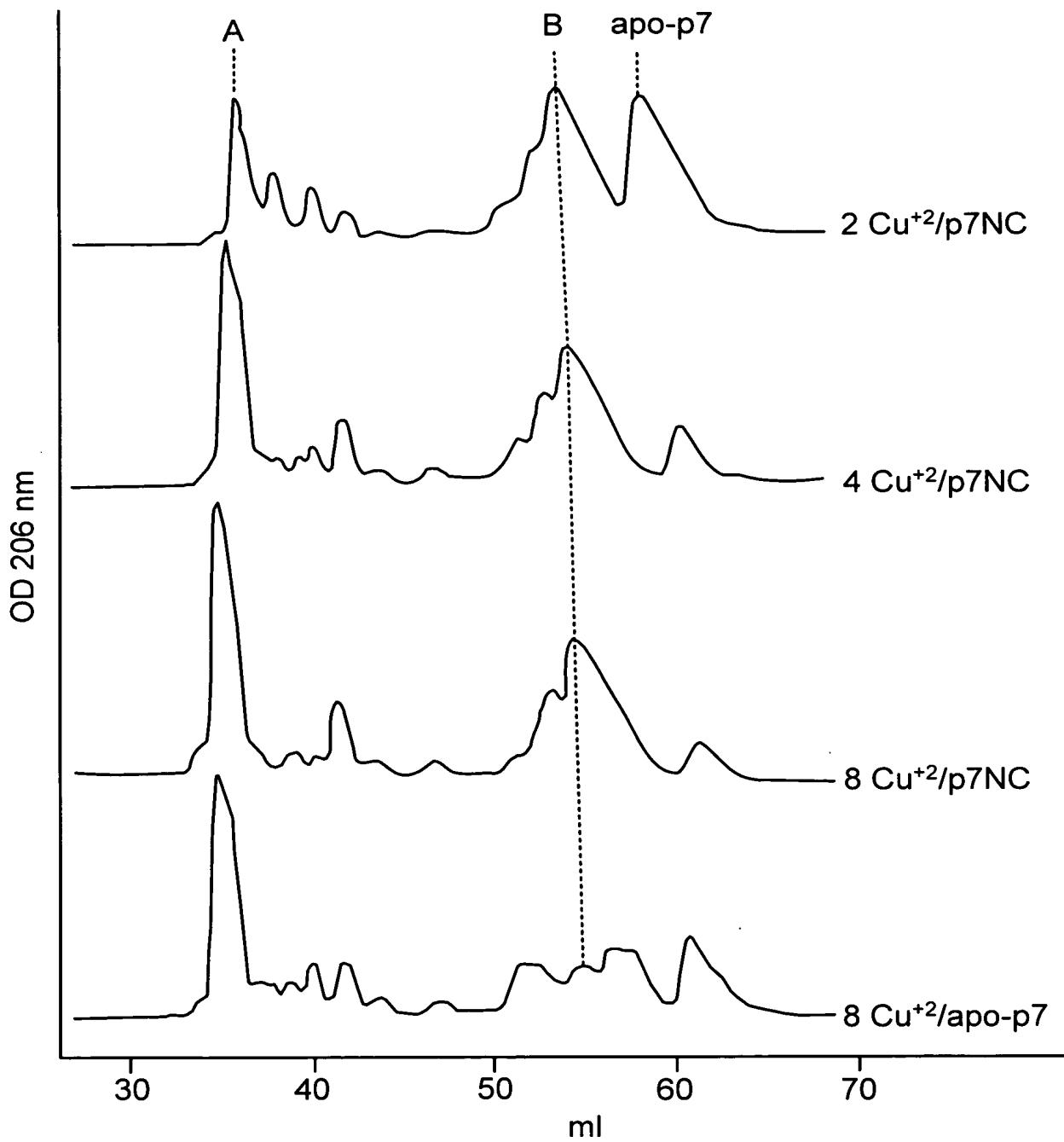


FIG. 8

METHOD FOR IDENTIFYING AND USING COMPOUNDS THAT INACTIVATE HIV-1 AND OTHER
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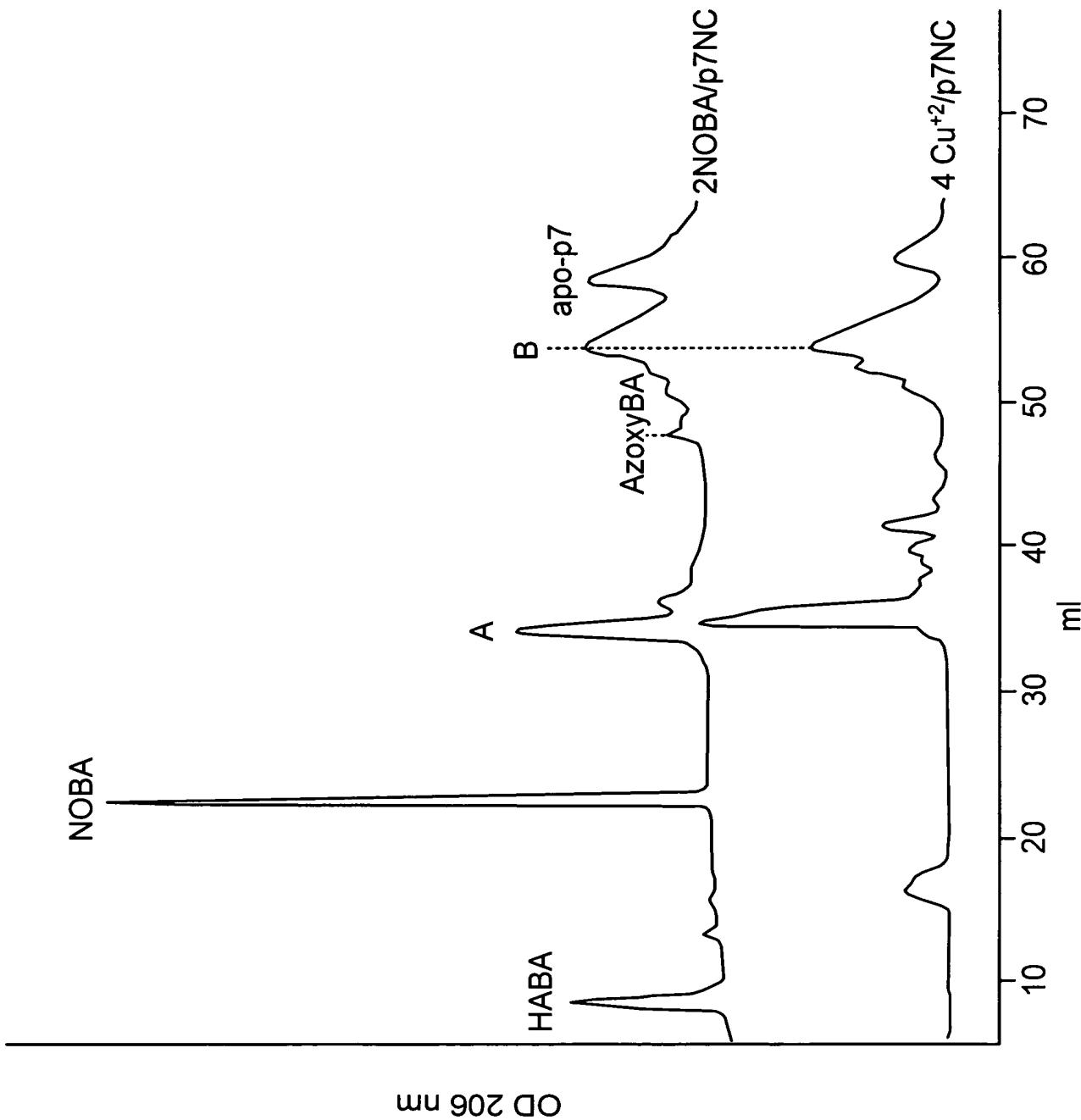


FIG. 9

METHOD FOR IDENTIFYING AND USING COMPOUNDS THAT INACTIVATE HIV-1 AND OTHER
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Replacement Sheet

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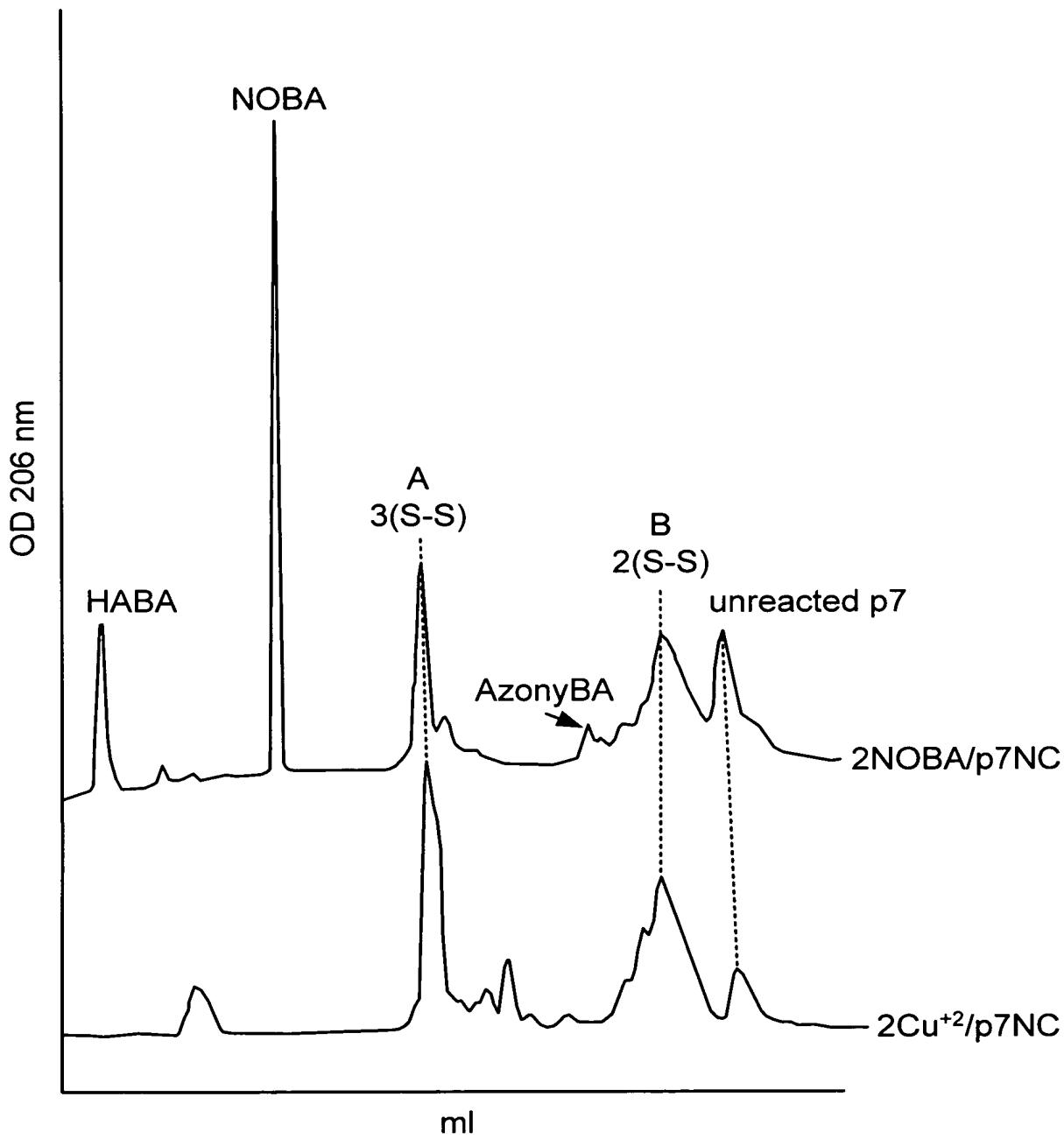


FIG. 10

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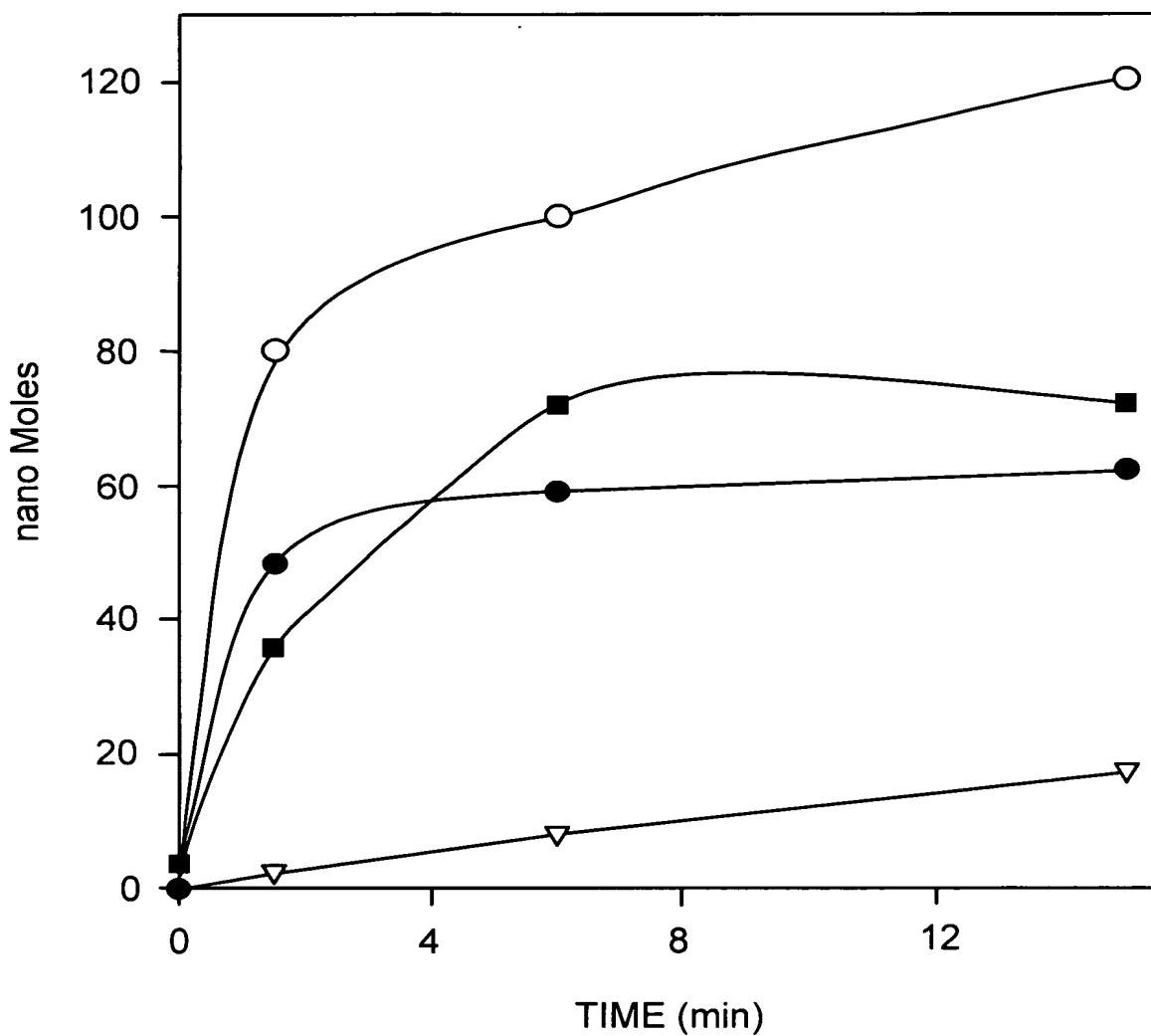
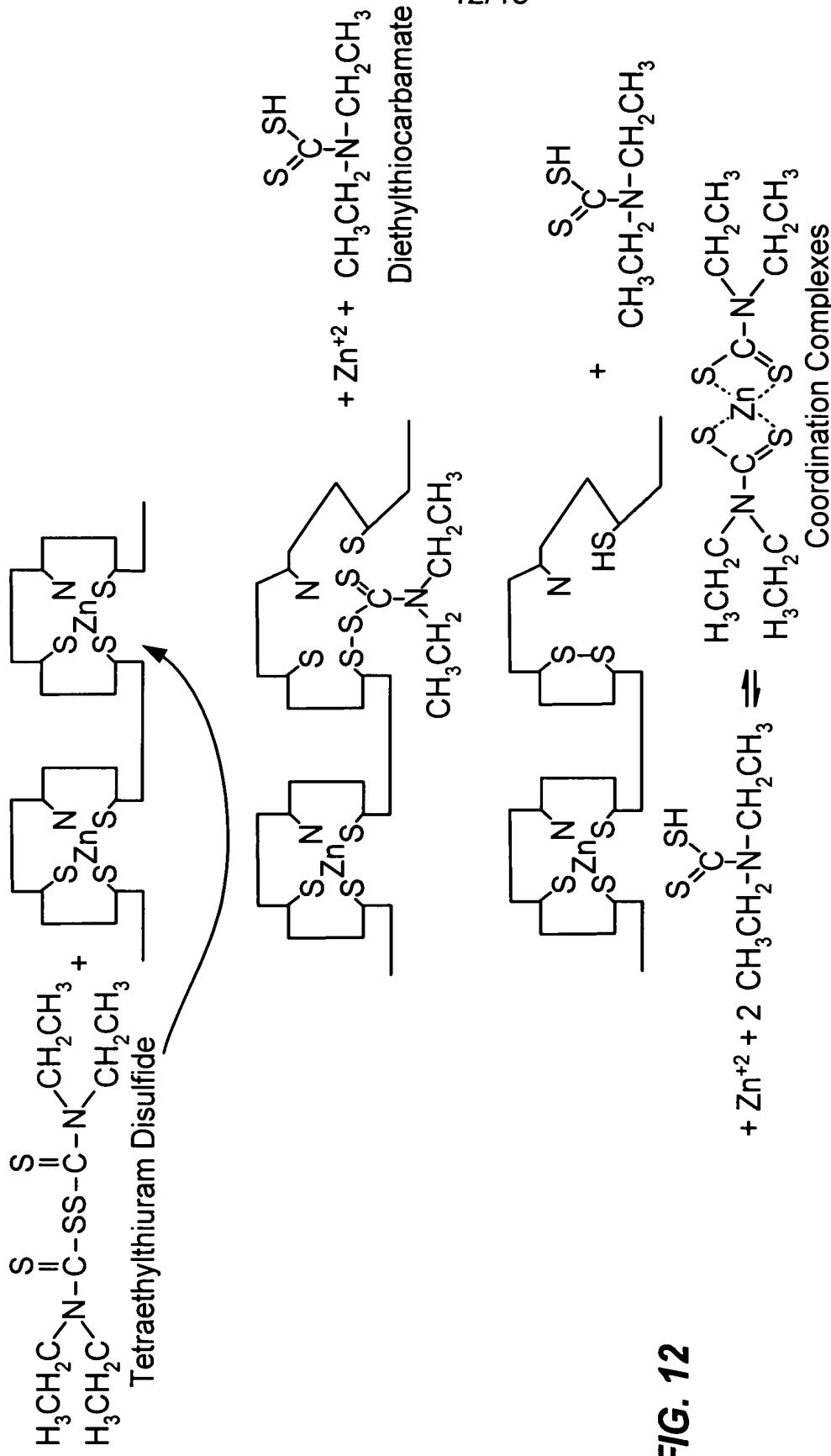


FIG. 11

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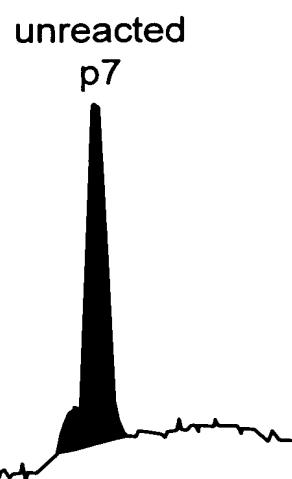


3 Tetraethylthiuram Disulfide + p7NC \rightarrow Oxidized p7 (3 S-S) + 6 Diethylthiocarbamate + 2 Zn⁺²

4 Diethylthiocarbamate + 2 Zn⁺² \rightarrow 2 Coordination Complexes

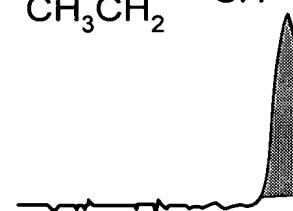
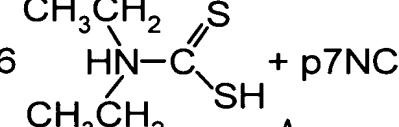
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Control
buffer + p7NC



Imuthiol
(Diethylthiocarbamate)

6 $\text{CH}_3\text{CH}_2 - \text{HN} - \text{C}(\text{S}) - \text{SH}$ + p7NC



Disulfiram
(Tetraethylthiuram Disulfide)

$$\text{CH}_3\text{CH}_2 - \text{HN} - \text{C}(\text{S}) - \text{S} - \text{S} - \text{C}(\text{S}) - \text{NH} - \text{CH}_2\text{CH}_3 + \text{p7NC}$$

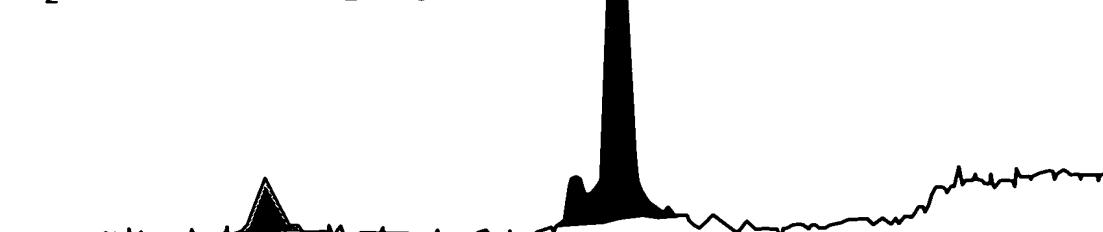
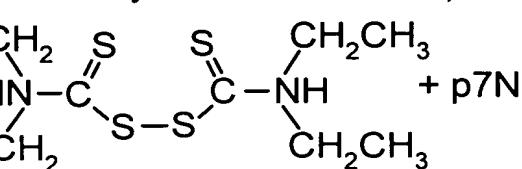
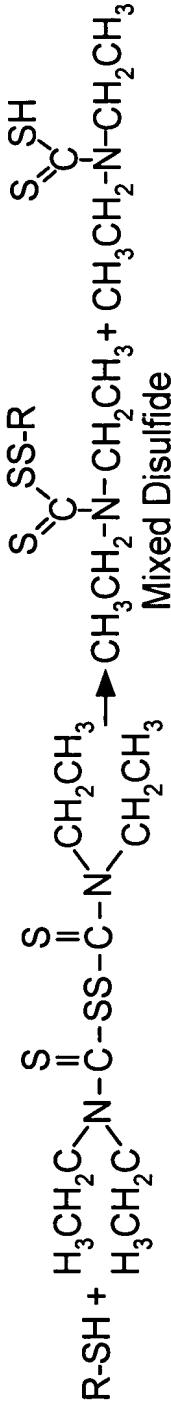
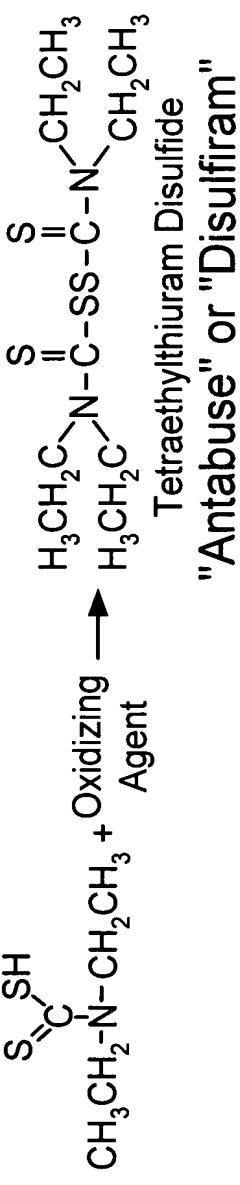
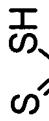
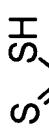


FIG. 13

Synthesis



General Reactions

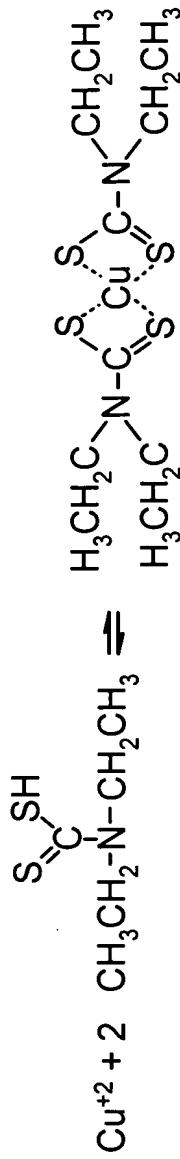
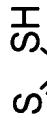
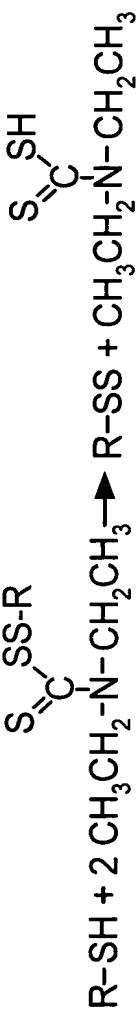
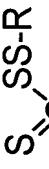
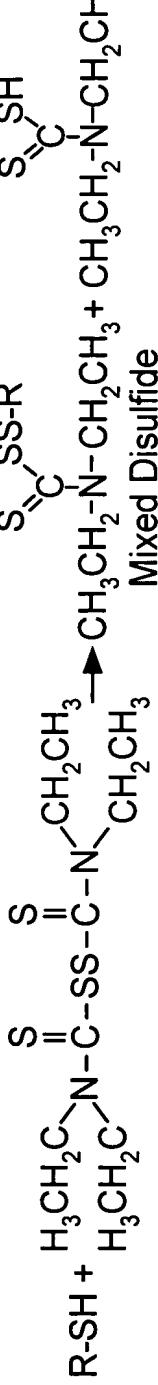


FIG. 14

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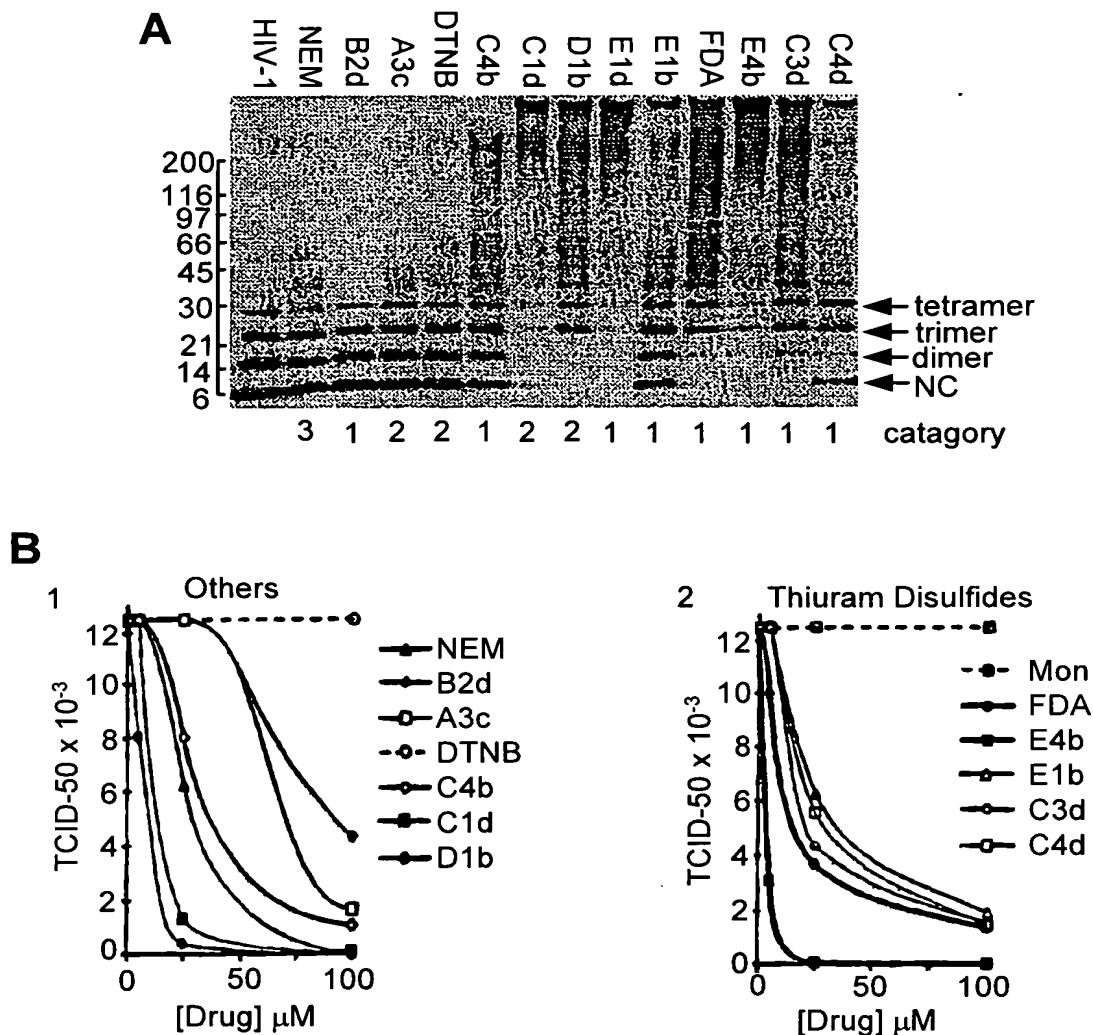


FIG. 15